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**Grounding the Dragon: Achieving Local Air Superiority to stop PRC Invasion in
2010 Short Duration Conflict Scenario**

By

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A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College, the Department of the Air Force, or the Department of the Navy.

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13 February 2006

Abstract

Reunification with Taiwan has long been a publicly stated goal of the Peoples Republic of China's (PRC) party leaders.¹ Political tensions could escalate between the PRC and Taiwan after the 2008 Olympics as PRC military power projection capability peaks. In one possible scenario, the PRC could attempt a "short duration conflict"² with Taiwan before significant United States (US) forces could arrive. With US national objectives to defend Taiwan and de-escalate the situation, but with limited forces in theater, the US operational commander would need to swiftly and decisively counter PRC military action.

In this short duration conflict, the US operational commander must focus all efforts to destroy the PRC operational center of gravity (COG), the amphibious invasion force. First, the US should gain local air superiority over northwest Taiwan using a combination of air and submarine power. Once air superiority is achieved, US air power should destroy or deter the poorly defended surface invasion force now vulnerable to air attack.

¹ Andrew Peterson, "Dangerous Games across the Taiwan Strait," *The Washington Quarterly*, No. 27 Vol. 2 (Spring 2004): 26.

² Ronald O'Rourke, *China Naval Modernization: Implications for U. S. Navy Capabilities—Background and Issues for Congress*, Ref. RL33153 (Washington, D.C., Congressional Research Service, Library of Congress, 18 November 2005), 26.

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INTRODUCTION

It is 2010, just two years after a peaceful 2008 Olympics in Beijing, yet the straits of Taiwan are filled with warships from the US and China, two nations on the brink of war. What should the US operational commander do? How would the US defend our ally, Taiwan, against the newly emerged PRC super-power 120 miles to the west?

Political and military developments may coincide to determine the nature of a PRC invasion of Taiwan. New generations of people with no ties to mainland China have been rising to power in Taiwan. This new pro-independence movement is sufficiently strong that after President Bush rebuked Taiwanese President Chen for being “willing to make a unilateral change in the cross-strait situation,”³ Chen used the rebuke to garner additional pro-independence supporters. President Chen and independence supporters clearly demonstrate that they are not only willing to stand up to China, but also to the US.⁴ With Chen’s recent re-election, the PRC and Taiwan appear headed for a political showdown.

World focus will remain on China until end of the 2008 Summer Olympic Games. This focus will likely limit PRC reaction to any Taiwanese calls for independence and nationalism.⁵ At the same time, Taiwan’s independence movement would continue to grow and may be further fueled by the Olympics. “Beijing’s hosting of the 2008 Olympic Games will greatly challenge the ethnic and national identification of the Taiwan people.”⁶ Any political face-off during this time period would coincide with several advanced PRC military systems estimated to enter service.⁷ The real danger post-2008 might be that “escalating

³ Peterson, “Dangerous Games across the Taiwan Strait,” 26.

⁴ Ibid., 26.

⁵ Ibid., 24.

⁶ Flor Wang, “Taiwan VP Urges Reconciliation among Political Parties,” *Central News Agency-Taiwan*, May 21, 2002; available from <http://web.lexis-nexis.com>; Internet; accessed 31 January 2006.

⁷ O’Rourke, 13.

tensions between China and Taiwan, submerged by Olympic goodwill, may then erupt so rapidly that the US will have little time to adapt.”⁸ This political situation could trigger a short duration conflict.

Although there are several scenarios by which the PRC could attempt its national goal of reunification with Taiwan, the most challenging for the US operational commander would be the short duration conflict scenario. The PRC, working under an exercise ruse, would preposition its amphibious and naval forces; begin with a complete missile barrage of Taiwan; then follow with an amphibious assault. The PRC campaign objective would be to militarily force Taiwanese capitulation prior to US intervention. Several “observers believe that China’s military modernization is aimed at fielding a force that can succeed in a short duration conflict with Taiwan that finishes before the US is able to intervene, so that China can present the US and the rest of the world with a *fait accompli*.”⁹ In this scenario, the US would not have enough warning to mobilize completely, but have sufficient notification to assemble US theater assets. US national objectives for the operational commander would be to defend Taiwan and deter the PRC from further action.

In a PRC short duration conflict attack scenario, the US operational commander must focus all efforts toward gaining air superiority starting in a small area of interest located about northwest Taiwan in order to use air power to destroy or deter the large PRC amphibious task force. All other military efforts should focus on aircraft carrier task forces protection.

Following an examination of operational assumptions and factors, this paper will detail the course of action, draw conclusions, and make recommendations.

⁸ Peterson, “Dangerous Games across the Taiwan Strait,” 39.

⁹ O’Rourke, 23.

OPERATIONAL ANALYSIS

In this 2010 scenario, assume the US can deploy two carrier task forces, four attack submarines and one USAF air wing (72 F-15s from Kadena AB, Japan) to the Taiwan Strait area of operations.¹⁰ Second, the PRC will not initially resort to nuclear war. Third, the PRC will not launch a "people's war" of insurgency, although "fifth column" operations might degrade Taiwan's ability to respond. For simplification, assume Taiwan incapable of any power projection due to the massive initial rocket assault. Also, the PRC military modernization would have advanced¹¹ and feature several key systems recently becoming operational.¹²

Operational Factor: Time

In a short duration conflict scenario, the amphibious invasion surface force would be the PRC's center of gravity. The scenario places the force approximately 60 nautical miles (nm) from Taiwan along the middle line (see Figure 1) of the Taiwan Strait at the beginning of hostilities. The United States drew this line when it signed the Mutual Defense Treaty with Taiwan in 1954.¹³ This middle line is the starting position for the amphibious forces, because the US, China, and Taiwan have always respected this line.¹⁴ The PRC amphibious attack group would mass just east of the line under the guise of an exercise. While US forces would be preparing for war, it is extremely unlikely that the US would preemptively attack given the sensitive political situation coupled with the formidable strategic air defenses (see

¹⁰ David T. Orletsky, David A. Shlapak, and Barry A. Wilson, *Dire Strait? Military Aspects of the China-Taiwan Confrontation and Options for US Policy* (Santa Monica, CA, National Security Research Division, RAND, 2000), 38.

¹¹ O'Rourke, 1.

¹² Most importantly the LUZHOU and LUYANG class destroyers, highlighted later.

¹³ "Taiwan Strait Middle Line," available from <http://www.globalsecurity.org/military/world/taiwan/maps.htm>; Internet; accessed 21 December 2005.

¹⁴ Ibid.

Figure 2) at this location.¹⁵ The amphibious invasion force would be made up of several types of ships. Crucial ships for PRC power projection would be the tank-carrying ships necessary to overpower the Taiwanese beach defenses. These large amphibious tank-carrying ships would be the PRC critical vulnerability for this scenario.

The Peoples Liberation Army Navy (PLAN) has increased amphibious ship production to address current lift deficiencies, and is now building three new classes of amphibious ships.¹⁶ The majority of the 43 (current number, see Figure 3, approximately 81 by 2010)¹⁷ tank-carrying landing ships would need to get to the beach in a short period. One can assume this force, along with hundreds of smaller personnel ships, will maintain some type of formation with escort ships providing protection as well as fire coordination for the final beach assault. Several critical amphibious ships have a maximum speed of 14 knots.¹⁸ After considering tactical and evasion maneuvering, large numbers of the critical ships would have an average speed of 12 knots. Therefore, after an all out missile attack, the amphibious force would need 5 hours to reach the coast of Taiwan. Additionally, the PLAN will take an estimated 5 hours, under combat conditions, to offload the ships.¹⁹ The PRC center of gravity for the operation (the estimated 81 heavy amphibious ships) will be vulnerable for 5 hours crossing the Strait and 5 more hours while the ships are offloaded on the beach.

Summarizing the operational factor, time, for the short duration conflict scenario, the PRC

¹⁵ US Department of Defense, *Annual Report to Congress [on] The Military Power of the Peoples Republic of China, 2005* (Washington, Office of the Secretary of Defense, released July 2005), 31. (hereafter cited as *Annual Report*)

¹⁶ *Ibid.*, 31.

¹⁷ *Ibid.*, 14.

¹⁸ "Jane's Amphibious and Special Forces," available from <http://search.janes.com>; Internet; accessed 30 January 2006, 5.

¹⁹ COL William Hartig, USMC, interview by author, Interview with former Marine Expeditionary Force operations planner, Newport, RI, 9 February 2006.

would need to *prevent the US from achieving air superiority for 10 hours* over the assault force while it crosses the Strait and offloads onto the beach.

Operational Factor: Space

The weather would impact PRC amphibious landings as well as all air operations. One assumes the PRC would choose timing an amphibious operation during favorable weather conditions because of the PLAN general lack of experience with amphibious operations and the inherent dangers of rough water amphibious operations.²⁰

Any insight on where this invasion fleet would initially mass and eventually land would be extremely valuable to the operational commander. By determining the Taiwanese critical vulnerability some insight can be gained regarding the PRC operational objective in the short duration conflict scenario. Taipei “is the main administrative, commercial, manufacturing, and cultural center of the island.”²¹ In addition to the significant logistics capabilities (harbors, large airfields etc.) around Taipei which the PRC could use to bolster entrenched forces, Taipei is home to the Taiwanese government and the “hub” for Taiwan’s politico-military command and control. The PRC objective might be to parade former Taiwanese government officials who would announce the formal reunification of Taiwan and China and ask the US to withdraw.²² Capturing Taipei would deprive the Taiwanese forces of their national command and control and create political confusion for the US and other allies. It would be the ideal campaign objective in a short duration conflict scenario.

²⁰ O’Rourke, 18.

²¹ “Taipei,” in *FirstSearch: World Almanac Detailed Record* [database on-line], available from <http://www.firstsearch.oclc.org>, accession No. fw00ta0038000a, Internet; accessed 31 January 2006.

²² O’Rourke, 23.

In general, there are beaches along the western shores of Taiwan suitable for an amphibious landing.²³ No matter where PRC forces land, they would surely maneuver north on Taiwan along the less mountainous western side of the island (see Figure 4). If the Chinese land in southern Taiwan, it would allow more time for the US and Taiwan to concentrate firepower on the invasion force as it advanced on Taipei. There are also potential “choke points” limiting PRC maneuverability where outnumbered defense forces could “bottleneck” any south to north invasion of Taiwan.

Based on the different lines of operation from the landing beaches to Taipei, the most likely location for an amphibious landing would be northwest Taiwan. No matter where the PRC force lands it would be critical for the Chinese to deny US air access to northwest Taiwan because Taipei would be the final objective. The airspace around the northwest tip of Taiwan (see Figure 1) would be a critical area of interest for the US operational commander and the decisive point where the US would need to gain air superiority.

Operational Factor: Force

Knowing the exact location where the US would need to achieve air superiority is important, because PRC strategic surface-to-air missiles (SAMs) and naval SAMs could be a decisive factor in negating US air superiority. In the Taiwan Strait, specifically in the “area of interest” outlined before, the PRC would have three effective means to interfere with US air superiority: lethal SA-20 strategic SAMs, land-based fourth-generation fighters, and long range naval SAMs on a Surface Action Group (SAG). These three forces would form the critical Chinese “anti-access” triangle against US airpower. While the land based SA-20s are relatively fixed and hindered by geography, the SAG, with long range offensive and

²³ “Map of Taiwan,” available from <http://www.sealaskatimber.com/images/Taiwan%20Maps/Taichunghbr.jpg>; Internet; accessed 6 February 2006.

defensive air defense systems could position themselves anywhere in the Straits. The PRC will *choose* to maneuver this critical SAG to provide the amphibious force operational protection from US airpower.

The Peoples Liberation Army Air Force (PLAAF) has been modernizing for some time and will continue to do so prior to 2010. They could attack the US air defense of the area of interest with over 700 fighters and bombers without need of refueling.²⁴ Although the USAF might possess force multipliers in terms of training and weapons, the numerical imbalance makes it likely the PLAAF could overwhelm US air power over northwest Taiwan during certain periods of time in the scenario.²⁵

The PRC has recently deployed a number of SA-20's along the Taiwan Strait. It will soon acquire the S-300PMU2 version of the SA-20, extending attack range to 108 nm.²⁶ This added range might allow the PRC to shoot down aircraft over parts of Taiwan (see Figure 2). This version of the SA-20 does **not** have over-the-horizon capability. The Russian S-400 Triumf variant of the SA-20, currently in development, is believed to have an over-the-horizon capability with a 216 nm range.²⁷ PRC procurement of the S-400 version would signify a considerable increase in capability, and would allow the PRC to destroy aerial targets on the east side of Taiwan. Because Russia does not currently plan to export the S-400,²⁸ it can be assumed China will have only the S-300PMU2 variant for this scenario. This version, limited by the curvature of the earth, would allow US air forces to operate below this radar's horizon (see Figure 5). With US strike aircraft attacking the

²⁴ *Annual Report*, 44.

²⁵ Douglas Barrie and Sharon Wienberger, "Threat Perception Red Alert," *Aviation Week and Space Technology*, 12 September 2005, 33.

²⁶ *Annual Report*, 32.

²⁷ "SA-20 SAM, Russia," available from <http://www.periscope.ucg.com/weapons/missrock/anti-air/w0004141.html>; Internet; accessed 31 January 2006.

²⁸ *Ibid.*

amphibious forces from 3,000 feet, the effective range of the SA-20's radar becomes 80 nautical miles, decreasing its operational reach.²⁹ By comparing this range to the area of interest (see Figure 6), one can determine that US strike aircraft can attack the invasion force from 3,000 feet to avoid any threat from the SA-20. A "high altitude" covering (air) force, for protection from PLAAF fighters would still be necessary. This horizon "wedge" supports current thinking about PRC power projection capabilities today; they currently cannot adequately defend their invasion fleet.³⁰ The vital operational change by 2010 will be the Chinese procurement of an SA-N-20.

The LUZHOU class destroyer, to be commissioned in 2007,³¹ will house an SA-N-20 air defense system; representing a quantum leap in anti-access capability for the PLAN. The LUZHOU SAG, featuring two LUZHOUs and two LUYANGs³² with several escort destroyers, would be able to position itself much closer to the area of interest (see Figure 7). This proximity to the area of interest negates potential US "wedge" operations described previously. Therefore, these PRC long range naval SAMS possess the operational reach *to deny US air superiority in the area of interest*. In addition to significant offensive capabilities, these SAMs have the capability to intercept inbound short-range ballistic missiles, cruise missiles, and air-to-surface missiles for self-protection.³³ The SAG, operating co-operatively, could create a multi-layered defensive umbrella, countering US standoff weapons. Despite the impressive air defense capabilities of the SAG, only four ships (2 LUZHOUs and 2 LUYANGs) would have the operational reach to deny US air

²⁹ Calculation follows: Distance a radar can see= $1.23 * (\sqrt{(\text{altitude of target aircraft in feet})} + \sqrt{(\text{altitude of radar antenna})})$. Assuming 3,000 feet operating altitude for US aircraft and the SA-20 target radar antenna at 100 feet, results in $(1.23 * (\sqrt{3,000} + \sqrt{100})) = 79.7$ nm. Formula from "Radar Horizon: Line of Sight," available from <https://ewhdbks.mugu.navy.mil/rdr-hori.pdf>; Internet; accessed 6 February 2006.

³⁰ *Annual Report*, 1.

³¹ "Destroyers, China," available from <http://search.janes.com>; Internet; accessed 21 December 2005.

³² Ibid.

³³ Ibid.

superiority in the area of interest and *only the four SAM systems* on these ships would need to be neutralized as the first step toward US air superiority.

In summary, an assessment for this scenario depicts several challenges for a US operational commander. The commander would need to gain air superiority over the area of interest as rapidly as possible. Once the arranging operation to achieve local air superiority concludes, a mere 10 hours would be available to destroy PRC center of gravity, the amphibious invasion fleet. In order to attain local air superiority, US forces must defeat or avoid three PRC forces: the SA-20 strategic SAMs, the PLAAF air units, and most importantly the LUZHOU (SA-N-20) SAG.

SPECIFIC COURSE OF ACTION

The US operational commander should use attack submarines and air power to gain local air superiority over the area of interest. The commander should deploy USAF air units and SAMs to defend the area of interest initially and begin attrition of the PLAAF. If politically feasible, the US commander should employ long range strategic bombers from the US mainland to destroy the SA-20s. At the same time, all submarine and naval strike aircraft should attack the key long range PRC naval SAMs on the LUZHOU and LUYANG class destroyers. The objective of these attacks should be to destroy the SAM systems--not necessarily sinking the ships. All other US operations should focus on protecting carrier task forces and intelligence, surveillance, reconnaissance assets. No other enemy forces should be attacked. Once the key anti-access naval SAMs are destroyed, the US should focus all efforts to destroying the amphibious attack force with air power.

Examining specifics in this COA, the selected the area of interest will determine the initial placement of US attack submarines (see Figure 7). These submarines, integrating all

available intelligence, should locate and track the LUZHOUs and LUYANGs in the SAG as soon as possible. When combat operations begin; the submarines could have the first attack opportunity. These attack submarines might be a vital force multiplier in this scenario because if they are successful in destroying their targets, more naval strike aircraft will be available to attack the amphibious force. If the initial submarine positioning (see Figure 7), based on the northwest Taiwan COG assumption, proves incorrect, the subs would need to maneuver and may never (in 5 hours) be in a position to engage the SAG prior to the amphibious group landing and offloading. As mentioned before, the further south on Taiwan the PRC amphibious force lands, the more time US/Taiwan forces would have to attack the disembarked PLA forces.

There are several pros and cons for the submarine portion of the COA. The sinking of the key anti-access ships at the very beginning of the invasion may be sufficient to deter the PRC from further action. Although the PRC would have already paid a high political price for an all out missile attack against Taiwan, they might turn around the (now poorly defended) amphibious force to immediately de-escalate the conflict between the two superpowers. Any PRC decision to continue the invasion after its protection force were destroyed would send a clear signal to US national leadership about PRC resolve, warning of even greater potential military escalation. The submarine attack against the SAG would leverage the US strength (undersea warfare) against PLAN weakness (anti-submarine warfare).³⁴ On the negative side, this operation could place some risk on the attack submarines, which will not have the advantage of knowing the timing of the overall PRC attack, giving the SAG (if they detect the submarines) the initiative for attack.

³⁴*Annual Report*, 18.

If the submarines could not destroy the four key ships in the SAG, carrier based strike aircraft would need to attack. With two carrier task forces in this scenario, limited strike sorties would be available. Assuming 1.5 hours per “cycle”³⁵ (takeoff to takeoff for each group of sorties), there would be six possible “cycles” in this scenario. Every sortie used to destroy the SAG would be taken from destroying the amphibious landing group. A well timed, choreographed, attack on the SAG using simultaneous standoff weapon and decoys would be necessary to overwhelm the SAG’s very capable air defenses.

Looking at the air attack component of the COA, on the positive side, air power will be agile enough to mass and attack wherever the LUZHOU SAG operates within the theater of operations. On the negative side, critical sorties would be lost from the main effort against the amphibious force. Additionally, naval stand off weapons may be successfully destroyed by the very capable PLAN destroyer air defenses, which ultimately would require more sorties to be re-allocated away from the main effort on the amphibious group.

Once the anti-access SAG component is negated, the operational commander should now focus all efforts on destroying the amphibious attack force from the air. If national authorities would allow the commander to destroy the SA-20’s on mainland China, there will be no beneath the radar “wedge” operations required for strike aircraft. The air war would look almost two-dimensional with US offensive counter air forces pushing the PLAAF just west enough to allow US Navy strike aircraft to operate in the area of interest. However, strike aircraft would not have complete freedom of movement, because imbedded destroyers would defend the amphibious force with less capable, lower altitude SAMs and Anti-aircraft artillery (AAA).

³⁵ LCDR Thomas Frosch, USN, interview by author, Interview with former *USS Kitty Hawk* department head, regarding combat cycle timing on-board aircraft carrier, Newport, RI, 31 January 2006.

If the operational commander could not target the mainland SA-20s due to fear of escalation, strike aircraft operations would be forced to lower altitudes. PRC SAM and AAA capable destroyers would pose a noteworthy threat to lower flying strike aircraft during “below the wedge” operations. US strike aircraft would need to destroy these PLAN destroyers first, with standoff weapons and tactics. Although the higher altitude protection aircraft cannot themselves push into the SAM ring (see Figure 2), they can still defend the lower flying strike aircraft by engaging any PLAAF fighters at maximum air-to-air missile range.

The key component to both previously discussed scenarios is *that air superiority would not need to be constant*. The US counter air forces may, at times, be overwhelmed by superior PLAAF numbers. What would be important for the MI operation to be successful is to have local air superiority *when and only when the naval strike aircraft are engaging the amphibious surface group*. Thus, air planners would be able to maintain the offensive by choosing the timing of the air counter-offensive. Naval strike air packages could form up east of Taiwan, and then, in unison with counter air forces, push to the west. On the US air commander’s timetable, the US could flood the sky with decoys and drones flying west, further degrading the PLAAF ability to counter the temporary ebb of the air war.

Closely evaluating the counter air portion of the COA, the benefits of agile combat air power can be seen. The inherent agility of air power would allow the US to take the offensive when and where desired. US air forces would only be threatened at the time and place of their choosing and would be relatively secure otherwise. By setting the tempo of the operation, US air forces would be able to engage surface targets in desired order; for example, they could engage SAM and AAA shooters first with a stand-off weapon equipped

strike package, followed rapidly by another air strike package attacking undefended amphibious ships with more conventional weapons. The time between attack “cycles” allow the PRC an opportunity to turn the amphibious force around and de-escalate the conflict. On the negative side, synchronizing counter air “pushes” to the west, with timed strike packages generated by aircraft carriers would be an extremely complex operation. Any delay in flight operations on either carrier would have ripple effects for the whole operation, lowering the total number of sorties that would be able to engage the surface fleet. Additionally, low flying “wedge” operations (if the SA-20s are left intact) could expose unwary aircrew to AAA and low altitude SAM threats.

Overall, the COA described for this scenario would maintain the operational offensive in a strategically defensive scenario (defense of Taiwan). It would minimize risk to less agile forces such as US surface naval assets while focusing solely on the Chinese COG, the amphibious surface group. This COA would incrementally weaken Chinese offensive capability, allowing the PRC potential exits to combat escalation, giving them an opportunity to “save face” and stop the operation. This ability is critical if the US hopes to restrict the extent of any conflict with the PRC over Taiwan.

There are two major decisions in this COA that warrant further explanation. A submarine task force or a surface attack group might be more effective in attacking the amphibious attack force. Also, instead of focusing on the protection of the carrier groups, one could argue instead that the US should engage the enemy surface fleet in a classic Mahanian fleet-on-fleet battle.

An examination of the local force ratios in the Strait of Taiwan is helpful in evaluating whether or not to use submarines to attack the PLAN amphibious fleet. Assuming

that a small PRC naval protection force (around 20 ships) would defend the amphibious fleet; there would be four US attack submarines to engage the major 101 PLAN ships.³⁶ These primary targets (the tank carrying ships, medium landing ships and destroyers) would drive west among hundreds of other smaller personnel carrying ships. The Taiwan Strait waters are shallow and heavily trafficked. The shallow Straits would force the attack submarines to move slowly to avoid detection from above.³⁷ US attack submarines would have a mere 5 hours to choose among several potential targets for the critical ones while executing shoot and move operations. In addition to these operational difficulties, LOS ANGELES class attack submarines only carry a maximum of 26 weapons (torpedoes or missiles) rendering 104 potential attacks for four submarines.³⁸ When evaluating the submarine option's force capability with the primary COA, the air power option allows more firepower to be brought to bear against the PLAN. While the submarine option limits attack time to 5 hours, the air power option allows 10 hours. Even assuming the entire first flight "cycle" of both available aircraft carriers is required to destroy the key naval SAM shooters, there would still be 5 "cycles" of strike aircraft remaining. Assuming 18 strike aircraft per carrier per cycle, 180 sorties remain; carrying 2-4 precision guided munitions each.³⁹ Because the attack submarines would not move quickly in the shallow Strait, incorrect initial positioning might render any submarine's intercept of the amphibious force impossible.

In addition to insufficient force concerns, the US submarines would be subject to a variety of attacks while operating in the Strait. The Chinese might mine parts of the Strait to protect their attack force. A recent PRC article claims that the PLAN has over 50,000 mines

³⁶ Adding the 20 protection ships to the 81 medium and tank-carrying landing ships discussed on page 4.

³⁷ Orletsky, 40.

³⁸ "Improved LOS ANGELES class (SSN-751)," available from <http://www.periscope.ucg.com/weapons/ships/subs/w0003060.html>; Internet; accessed 31 January 2006.

³⁹ Frosch, interview.

in 30 varieties and will use them to surround Taiwan.⁴⁰ Because the submarines would have to engage so many targets, potentially giving away their position each time, the Chinese surface protection group will have more opportunities to attack the US submarines. The primary COA would allow greater self-protection for the attack submarines, because they would only need to destroy the four key destroyers and then completely leave the area.

Mahan might argue to use the US surface fleet in an aggressive role, attacking either the amphibious group or the anti-access surface group in a traditional fleet-on fleet naval battle. There are several problems with this COA, the most important being fleet protection. The PRC has invested heavily in sea-denial weaponry. Most notable is the growing PRC submarine force that could put to sea "...50 modern-to-moderate attack submarines...more submarines than the US Navy can locate and counter."⁴¹ A surface attack force running throughout the Taiwan Strait area could stumble over these (50) modern attack submarines as well as the 50,000 plus PLAN mines. The PRC have been modernizing their ballistic missiles, increasing their accuracy to potentially target US warships.⁴² Any US surface group venturing too close to the mainland would also need to concern itself with potential PLAAF attacks. Air power's inherent agility would favor the PLAAF in this scenario because once any US surface force were located in range of the mainland, the Chinese could mass air power to temporarily overwhelm the fleet's air defenses. The PLAAF could attack US surface groups within SA-20 protection ranges negating fleet airborne defense capabilities (see Figure 2). In summation, the PRC would most likely win battles for sea control in a 2010 short duration conflict scenario, because the PLAN will have propositioned

⁴⁰ Hai Lin, "Taiwan's Own Military Affairs Experts Forecast—In 2010 Taiwan will be Surrounded with a Sea Mine Battle Array: An Evaluation of the PLAN Mine Warfare Combat Strength," *World Outlook*, No. 9 (May 2005), 16.

⁴¹ O'Rourke, 9.

⁴² "Offensive Weapons, China," available from <http://search.janes.com>; Internet; accessed 31 January 2006.

more forces in the Strait area prior to the conflict. The PRC, with the strategic offensive and shorter distance to the theater would bring more surface/submarine forces than an outnumbered US surface fleet could handle. Comparing the two COAs, the primary one would provide greater fleet protection without sacrificing offensive firepower. By establishing safe waters to operate in, somewhere within air strike range of the area of interest, the carrier task forces could minimize exposure to PRC submarines, ballistic missiles, mines and air attacks.

In addition to the US fleet protection issue, the fleet-on-fleet sea control battle would immediately escalate the conflict. Both superpowers might well sustain major losses in such a battle, regardless of apparent victor. With limited US objectives seeking to avoid escalation, a major battle with large potential for loss of blood and treasure for ultimate “control of the sea” would be completely unsuitable against a nuclear-capable superpower adversary.

CONCLUSIONS/RECOMMENDATIONS

In a 2010 PRC invasion of Taiwan short duration conflict, Mitchell’s airpower theories might prove more relevant than Mahan’s for the US operational commander. Focused and incremental force application using air power against the PRC’s center of gravity would prove more effective in achieving overall US national objectives of defending Taiwan while avoiding escalation. Additionally, because only limited forces might be available to the operational commander in this scenario, the economic use of combat power will be paramount. Achieving limited local air superiority over the decisive point in the Taiwan Strait would enable US air power to neutralize the PRC center of gravity, the amphibious landing force, for the short duration conflict scenario.

The following recommendations would assist the US operational commander in a Taiwan Strait short duration conflict. By implementing these recommendations, US leaders would greatly improve the operational situation faced in a Taiwan Strait confrontation and might be able to deter any PRC aggression before any conflict begins.

US leaders must closely monitor and if necessary, attempt to politically limit, the types of SAMs the PRC acquires. Extremely long range, over-the-horizon capable, anti-stealth SAMs being developed in Russia (discussed previously) sold to the PRC would completely solidify its anti-access capability over Taiwan.

The US should pre-position a larger percentage of our best conventional military assets (F-22s, attack submarines, aircraft carriers) to the west. The short duration conflict against the PRC is the most likely large-scale conventional scenario in the next 10 years.

Finally, US national leadership should respond quickly and appropriately to any PRC activities which indicate they intend to execute the short duration conflict. Appropriate responses to PRC actions are implied by the COA examined previously. The mere threat of the capability to defeat PRC anti-access forces might be enough to deter any PRC invasion. For example, as political tensions rise in the Strait, US leaders could announce the deployment of 10 attack submarines to the area. One submarine could find and (visible to the PRC) track the LUZHOUs. Excessive PLAAF air activity could be countered with a rapid F-22 deployment to Guam. If the PRC's ability to protect an amphibious force is uncertain, it will likely back down.

By understanding critical PRC anti-access capabilities and showing a desire and capacity to defeat them with the COA described above, the US operational commander will be capable of deterring, then defeating the PRC in a short duration conflict scenario.

SOURCES CONSULTED

Barrie, Douglas and Sharon Wienberger. "Threat Perception Red Alert." *Aviation Week and Space Technology*. New York. 12 September 2005, 33.

"Destroyers, China." Available from <http://search.janes.com>. Internet. Accessed Dec 21, 2005.

Frosch, Thomas LCDR, USN. Interview by author. Newport, RI. 31 January 2006.

Hartig, William, COL, USMC. Interview by author. Newport, RI. 9 February 2006.

"Improved LOS ANGELES class (SSN-751)." Available from <http://www.periscope.ucg.com/weapons/ships/subs/w0003060.html>. Internet. Accessed 31 January 2006.

"Jane's Amphibious and Special Forces." Available from <http://search.janes.com>. Internet. Accessed 30 Jan 2006.

Lin, Hai. "Taiwan's Own Military Affairs Experts Forecast—In 2010 Taiwan will be Surrounded with a Sea Mine Battle Array: An Evaluation of the PLAN Mine Warfare Combat Strength." *World Outlook*. No. 9 (May 2005): 16-18.

"Map of Taiwan." Available from <http://www.sealaskatimber.com/images/Taiwan%20Maps/Taichunghbr.jpg>. Internet. Accessed 6 February 2006.

"Offensive Weapons, China." Available from <http://search.janes.com>. Internet. Accessed 31 January 2006.

Oliver, Jeff. "Ménage a Taiwan." *Issues and Studies*. Taipei, Taiwan. Vol. 41. No. 1 (March 2005): 88-89.

Orletsky, David T., David A. Shlapak, and Barry A. Wilson. *Dire Strait? Military Aspects of the China-Taiwan Confrontation and Options for US Policy*. Santa Monica, CA, National Security Research Division, RAND. 2000.

O'Rourke, Ronald. *China Naval Modernization: Implications for U. S. Navy Capabilities—Background and Issues for Congress*. Ref. RL33153. Congressional Research Service, Library of Congress. Nov 18, 2005.

Peterson, Andrew. "Dangerous Games across the Taiwan Strait." *The Washington Quarterly*. No. 27 Vol. 2 (Spring 2004): 23-41.

"PLAN future structure." Available from <http://www.periscope.ucg.com/nations/asia/china/navy/index.html>. Internet. Accessed 31 January 2006.

“Radar Horizon: Line of Sight.” Available from <https://ewhdbks.mugu.navy.mil/rdr-hori.pdf>. Internet. Accessed 6 February 2006.

“SA-20 SAM, Russia.” Available from <http://www.periscope.ucg.com/weapons/missrock/antiair/w0004141.html>. Internet. Accessed 31 January 2006.

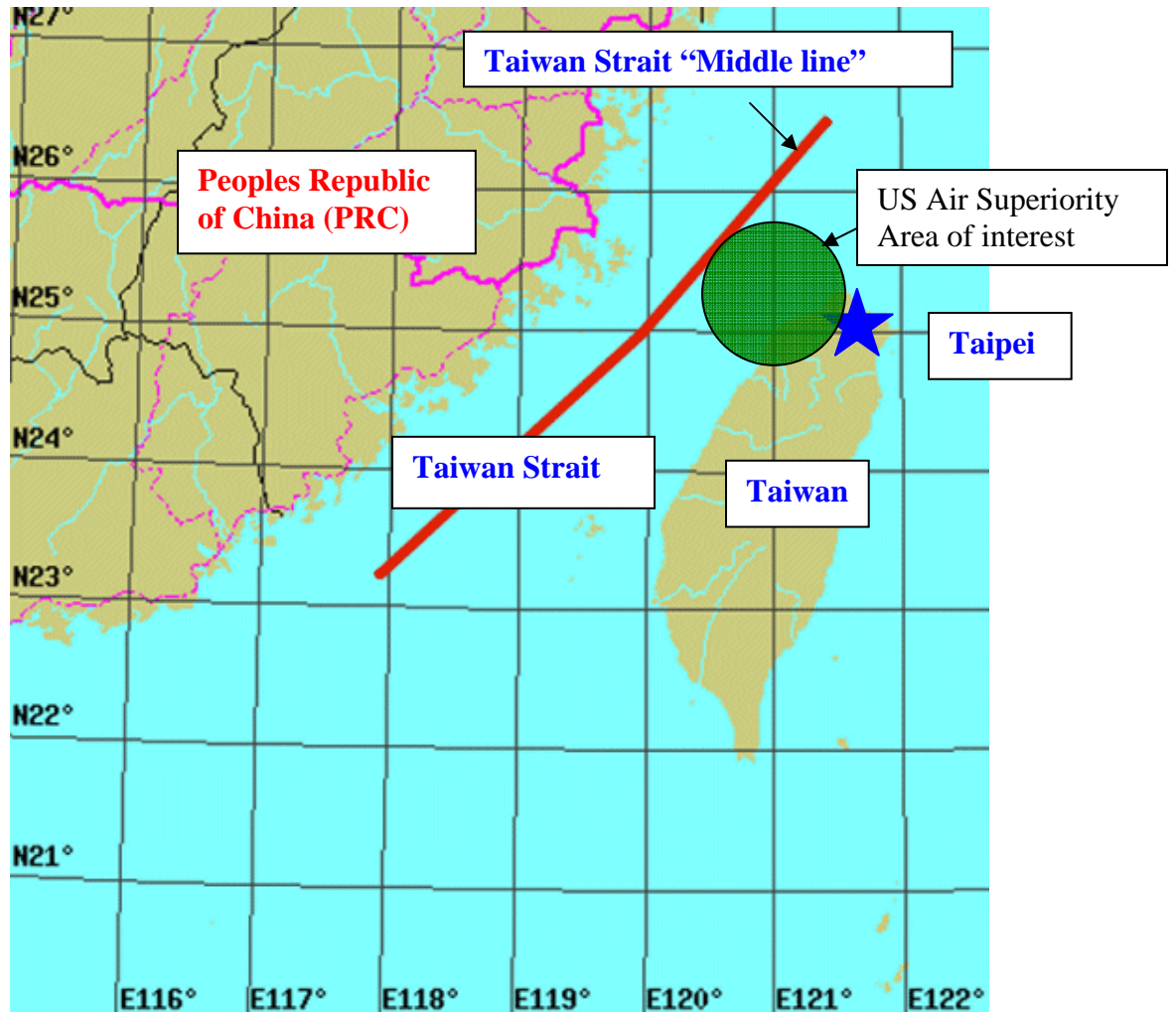
“Taipei.” In *FirstSearch: World Almanac Detailed Record* [database on-line]. Available from <http://www.firstseach.oclc.org>, accession No. fw00ta0038000a. Internet. Accessed 31 January 2006.

“Taiwan Strait Middle Line.” Available from <http://www.global-security.org/military/world/taiwan/maps.htm>. Internet. Accessed 21 December 2005.

US Department of Defense. *Annual Report to Congress [on] The Military Power of the Peoples Republic of China, 2005*. Washington, Office of the Secretary of Defense. July 2005.

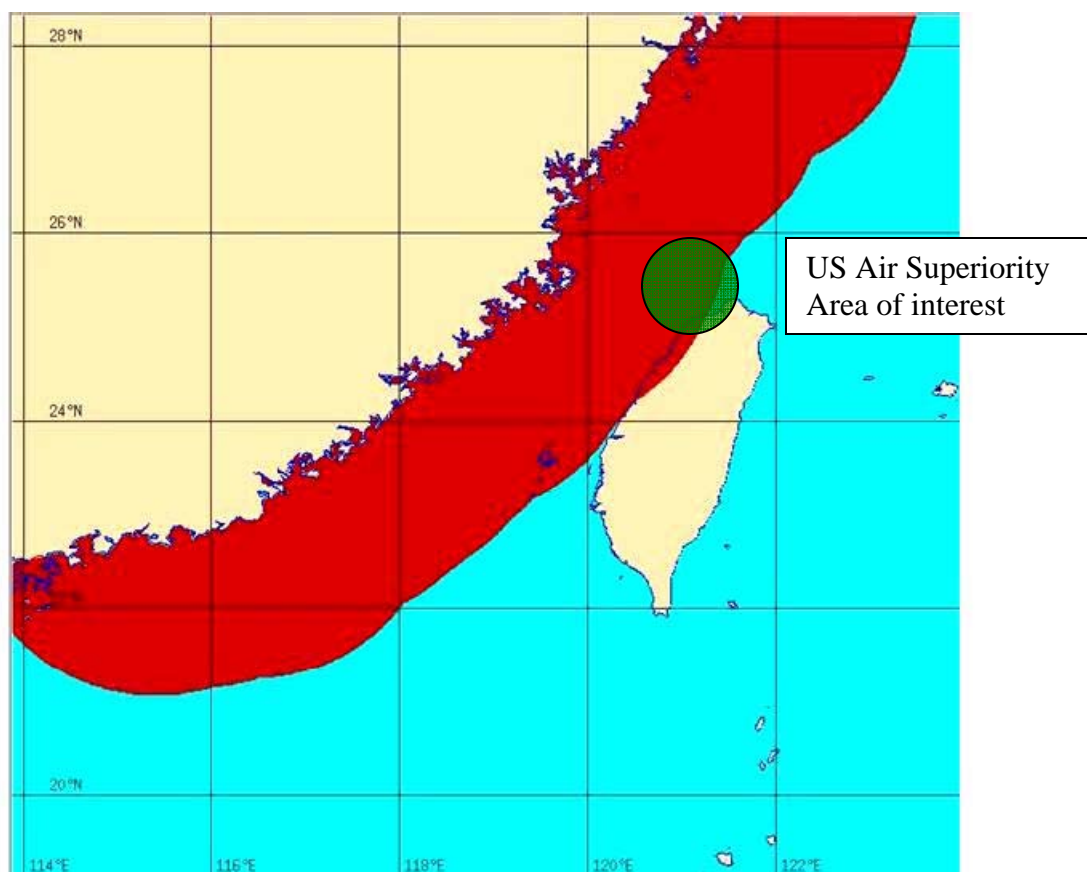
Wang, Flor. “Taiwan VP Urges Reconciliation Among Political Parties.” *Central News Agency-Taiwan*. 21 May 2002. Available from <http://web.lexis-nexis.com>. Internet. Accessed 31 January 2006.

Figure 1: Taiwan Strait “Middle Line”⁴³



⁴³ "Taiwan Strait Middle Line," 1.

Figure 2: Land Based SA-20 Ranges⁴⁴



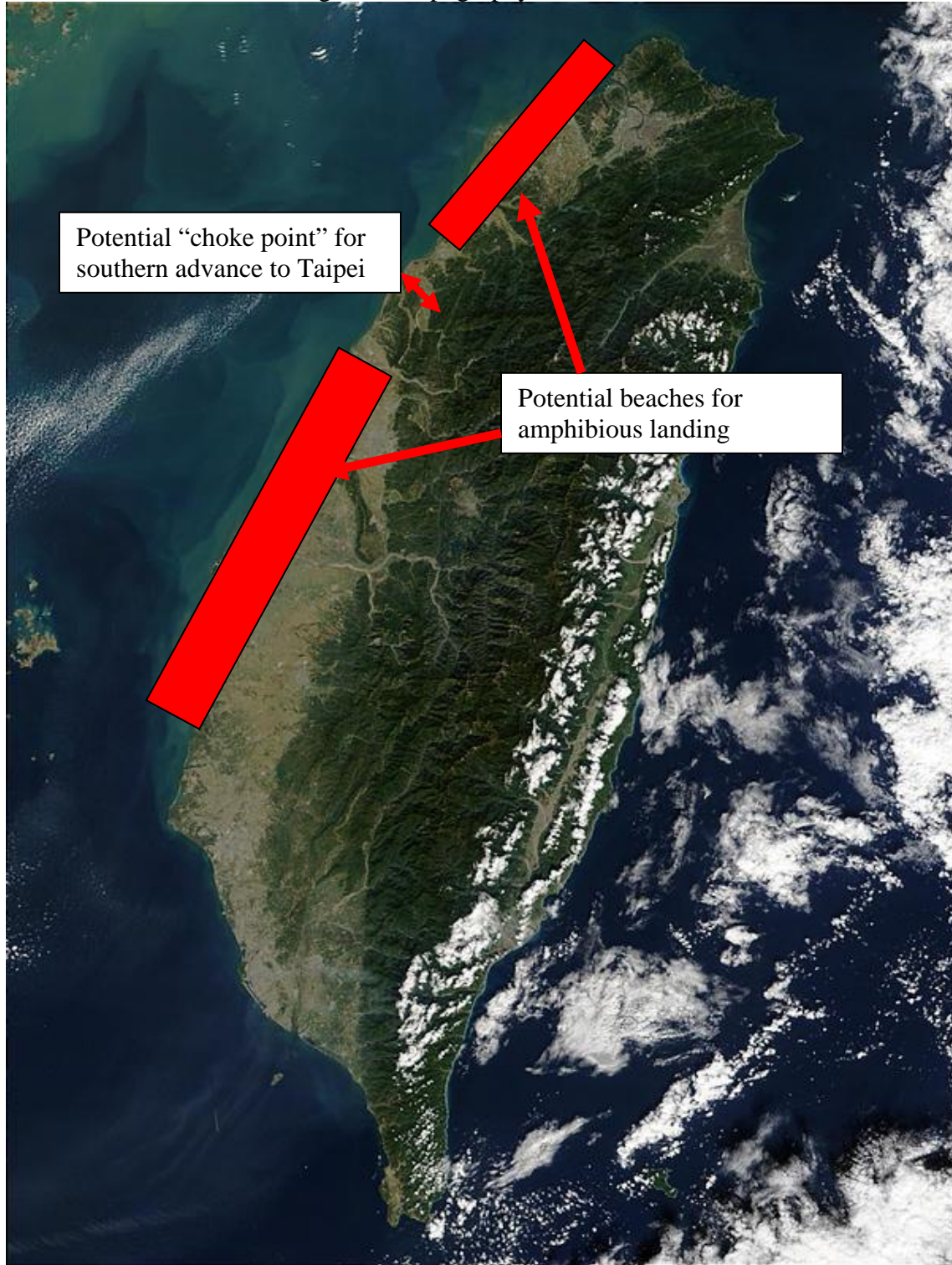
⁴⁴ *Annual Report*, 32.

Figure 3: Comparison of Naval Forces⁴⁵

Taiwan Strait Military Balance, Naval Forces			
China			Taiwan
	Total	East and South Sea Fleets	Total
Personnel	290,000	140,000	60,000
Destroyers	21	13	6
Frigates	43	34	21
Tank Landing Ships	20	20	12
Medium Landing Ships	23	15	4
Diesel Submarines	51	29	4
Nuclear Submarines	6	0	0
Coastal Patrol (Missile)	51	34	50
Note: The PLA Navy has a large fleet that includes 64 major surface combatants, approximately 55 attack submarines, more than 40 medium and heavy amphibious lift ships, and some 50 coastal missile patrol craft. Two-thirds of those assets are located in the East and South Sea Fleets. In the event of a major Taiwan conflict, both fleets would be expected to participate in direct action against the Taiwan Navy. The North Sea Fleet would be responsible primarily for protecting Beijing and the northern coasts, but could provide mission critical assets to support the other fleets.			

⁴⁵ *Annual Report*, 44.

Figure 4: Topography of Taiwan⁴⁶



⁴⁶ “Map of Taiwan,”1.

Figure 5: SA-20 “Wedge” Flight Operations

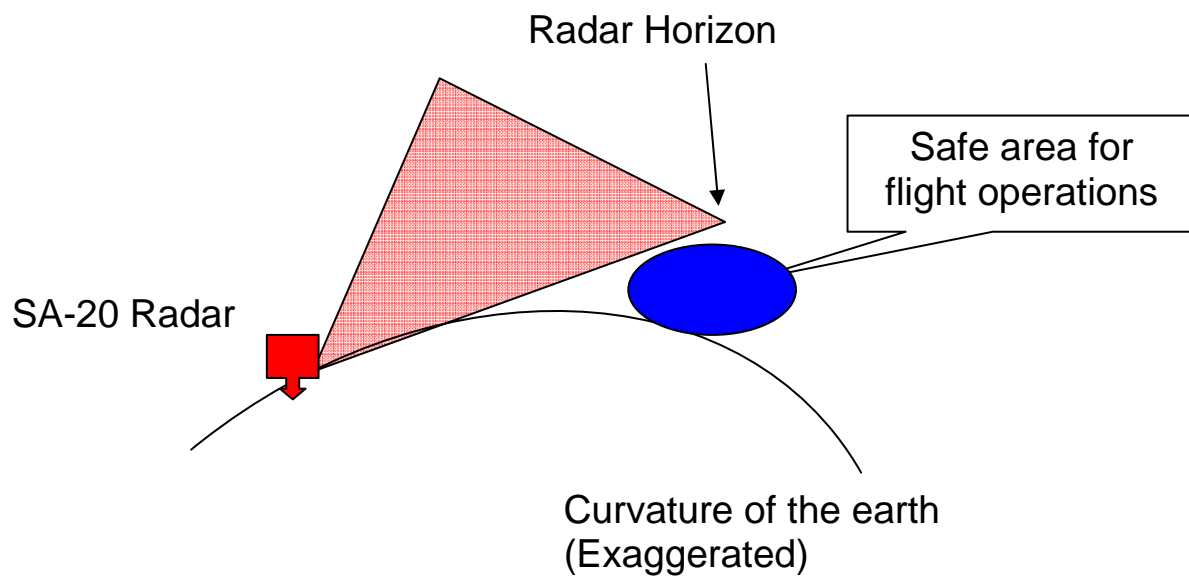
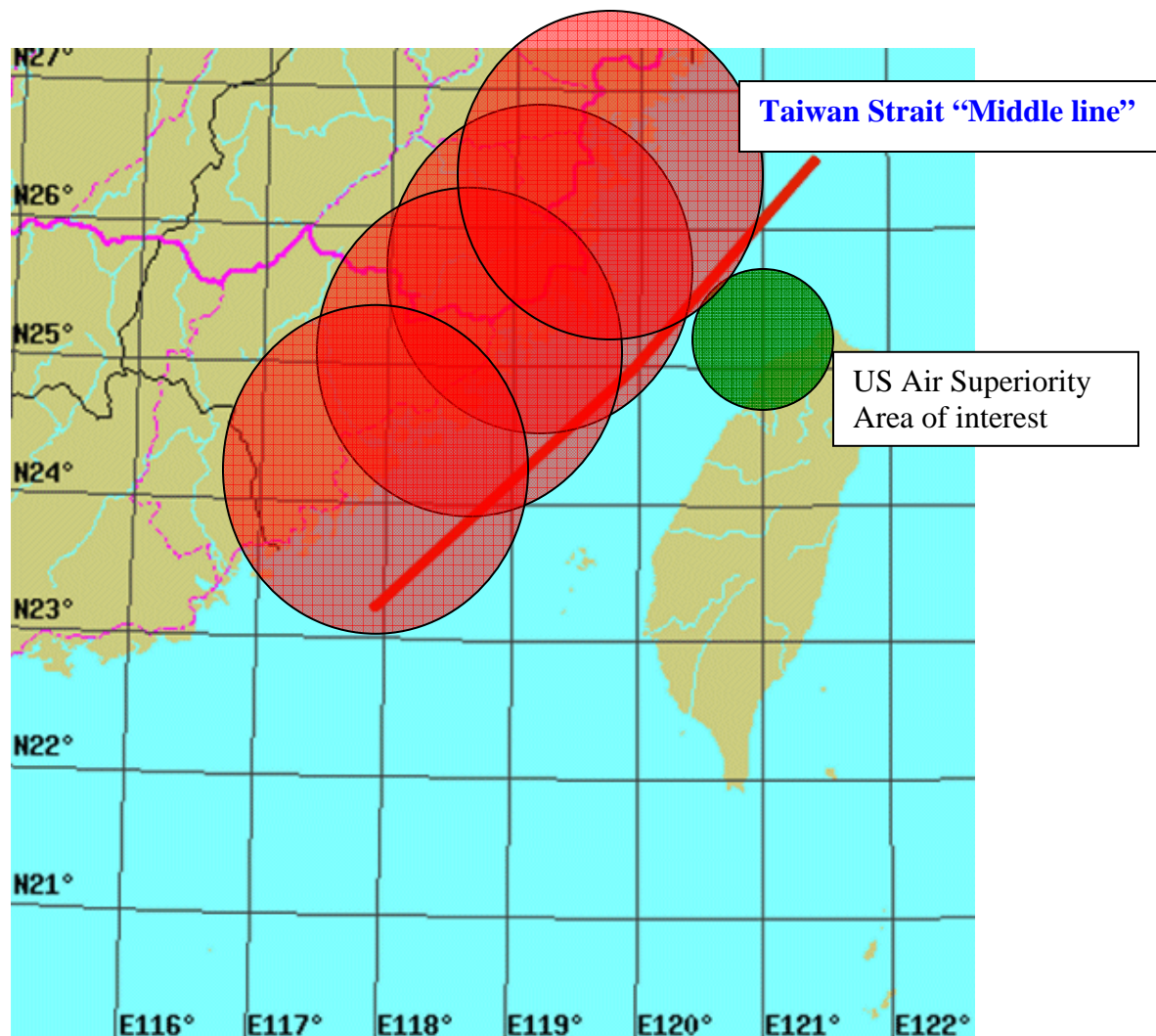
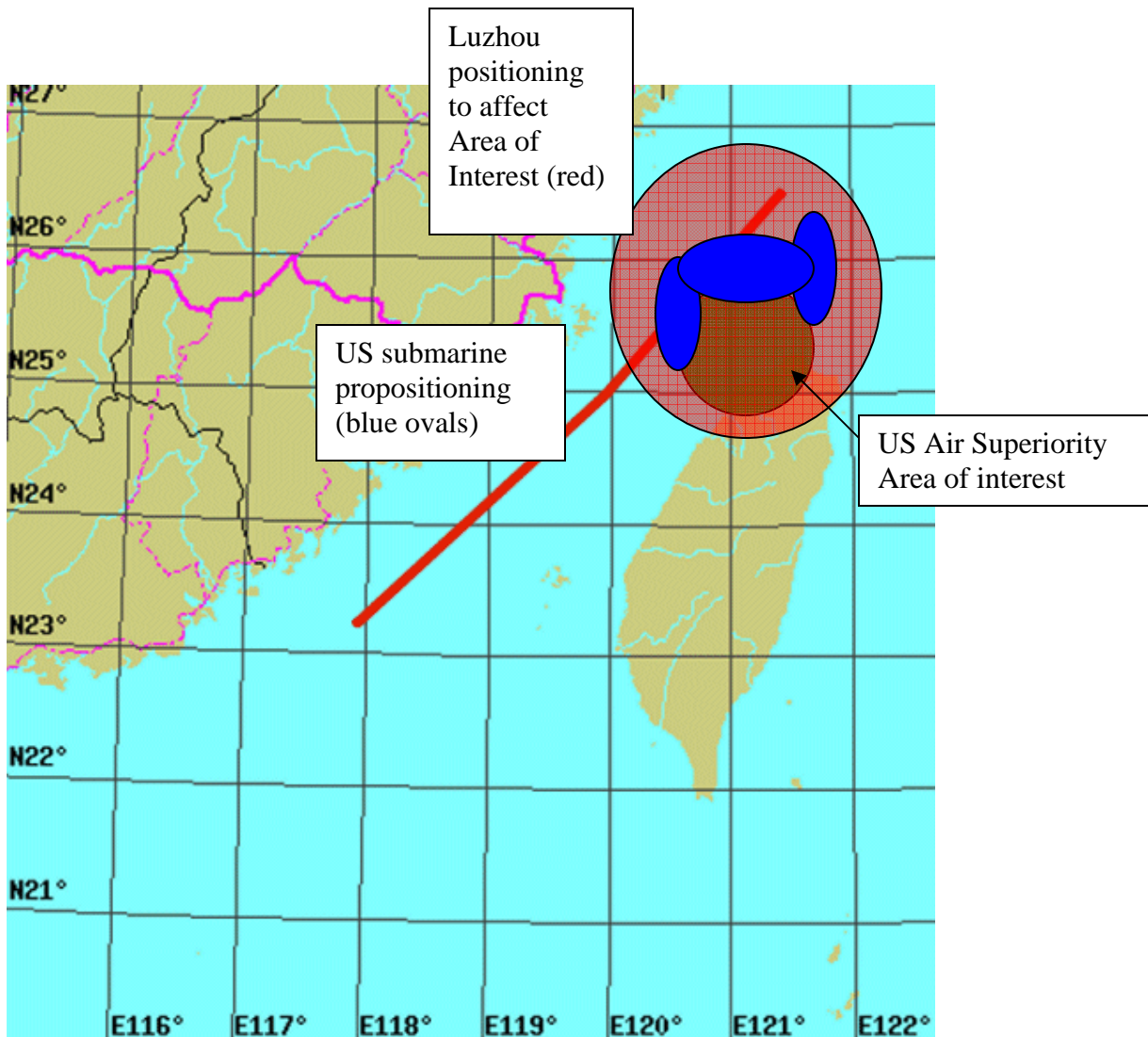


Figure 6: Range of SA-20 against 3,000 foot high Targets⁴⁷



⁴⁷ "Taiwan Strait Middle Line," 1, for original map, new circles drawn by author.

Figure 7: SA-N-20 Implications on Area of Interest⁴⁸



⁴⁸ “Taiwan Strait Middle Line,” 1, for original map, new circles drawn by author.